

TITLE: Systematic Anomalies in Rainfall Intensity Estimates Over the Continental U.S.

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AUTHORS (FIRST NAME, LAST NAME): Eyal Amitai¹, Walter Arthur Petersen², Xavier Llort³, Steve Vasiloff⁴

INSTITUTIONS (ALL): 1. NASA Goddard Space Flight Center & Chapman University, Greenbelt, MD, United States.

2. NASA Marshall Space Flight Center, Huntsville, AL, United States.

3. CRAHI/Universitat Politècnica de Catalunya, Barcelona, Spain.

4. NOAA National Severe Storms Laboratory, Norman, OK, United States.

ABSTRACT BODY: Rainfall intensities during extreme events over the continental U.S. are compared for several advanced radar products. These products include: 1) TRMM spaceborne radar (PR) near surface estimates; 2) NOAA Next-Generation Quantitative Precipitation Estimation (QPE) very high-resolution (1 km)

radar-only national mosaics (Q2); 3) very high-resolution instantaneous gauge adjusted radar national mosaics, which we have developed by applying gauge correction on the Q2 instantaneous radar-only products; and 4) several independent C-band dual-polarimetric radar-estimated rainfall samples collected with

the ARMOR radar in northern Alabama. Though accumulated rainfall amounts are often similar, we find the

satellite and the ground radar rain rate pdfs to be quite different. PR pdfs are shifted towards lower rain rates,

implying a much larger stratiform/convective rain ratio than do ground radar products. The shift becomes more

evident during strong continental convective storms and much less during tropical storms. Resolving the continental/maritime regime behavior and other large discrepancies between the products presents an important challenge. A challenge to improve our understanding of the source of the discrepancies, to determine the uncertainties of the estimates, and to improve remote-sensing estimates of precipitation in general.

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